

Research Article

The Evolution of Android Studio as A 21st Teaching Tool in Supplementing English Primary School Textbook

Anis Aleeya Hashim^{1,*}, Aisa Arleen Anuar², and Aini Faridah Azizul Hassan³

¹ anisaleeya2@gmail.com  ORCID ID: 0009-0008-7563-7336

² aisaarleen@gmail.com  ORCID ID: 0009-0002-2240-4463

³ ainifari@uitm.edu.my;  ORCID ID: 0009-0006-0015-751X

Abstract: The evolution of technology has revolutionised the way education is delivered. The use of educational technology, such as mobile applications, has emerged as a powerful teaching tool and can enhance the learning experience for primary school students. As stated by Dahiya & Singh (2019) implementing educational technology or mobile applications can enhance the development of knowledge and 21st century skills if it is appropriately designed and implemented. This paper explores the use of Android Studio, a development tool, to create interactive applications that supplement English primary school textbooks. With its interactive interface, Android Studio enables developers to create engaging educational applications that supplement English primary school textbooks. These applications provide multimedia content, quizzes, games and interactive activities that reinforce key concepts covered in textbooks. The development process involves identifying the content to cover, determining the features to include, creating a storyboard, developing the application, testing and refining it, and publishing it for use. It follows the ADDIE framework in creating the learning materials. The use of such applications can provide students with a more engaging and interactive learning experience that reinforces key concepts covered in their textbooks. It concludes that the use of Android Studio-based applications in the classroom can significantly enhance primary school student's learning experience, making it more interactive, engaging, and effective. Smartphone learning allows teachers and students to go beyond traditional school spaces and increased flexibility and offer new interaction opportunities as well as commercialization potential. The outcomes indicate that android-based interactive multimedia is feasible to be applied as a medium in the material of buffer solutions for primary education systems especially in the revolution of 21st technology era.

Keywords: Educational technology; Android Studio application; interactive learning; 21st teaching tool; primary school



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1. INTRODUCTION

Educational technology is a systematic and organised application of modern technology to improve educational quality (Dahiya & Singh, 2019). Technology is a powerful tool that can assist and improve education in many ways, from making things easier for teachers to design instructional content to enabling new methods for students to learn and work collectively. With the global reach of the Internet and the availability of smart gadgets that can connect to it, an advancement of anytime anywhere education is arising (Purdue Online, 2021). It will be up to designers and education

technologies to make the most of the potential offered by technology to improve education so that efficient and productive learning can take place to everyone everywhere.

Appropriate use of educational technology or mobile application helps students to have the flexibility to choose their own time, place, or pace to learn. Learning materials that are integrated with different media such as audio, video, narration, animation, graphics, and others allow students opportunities to improve their intelligence or learning styles. These technology or mobile applications can enhance the development of knowledge and 21st century skills like creativity, problem solving, and critical thinking if it is appropriately designed and implemented (Dahiya & Singh, 2019).

This paper examines the evolution of Android Studio as a teaching tool and its effectiveness in enhancing primary school student's learning experience over textbooks.

2. METHODOLOGY

We have developed the application using Android Studio software and used the ADDIE model as the framework. It involved Analysis, Design, Development, Implementation and Evaluation phases. Before we start designing our app, we have analysed and decided Year One students as our target audience, and we have designed the app according to our target age by referring to their current school syllabus textbook.

As the app is for Year One students, we used bright colours, illustrations of cute animals and pictures, and some colourful backgrounds. The app was developed with the purpose of facilitating students with their daily classes learning of the topics as per their regular school schedule. We also created a storyboard to plan the process of designing and how the app would look like.

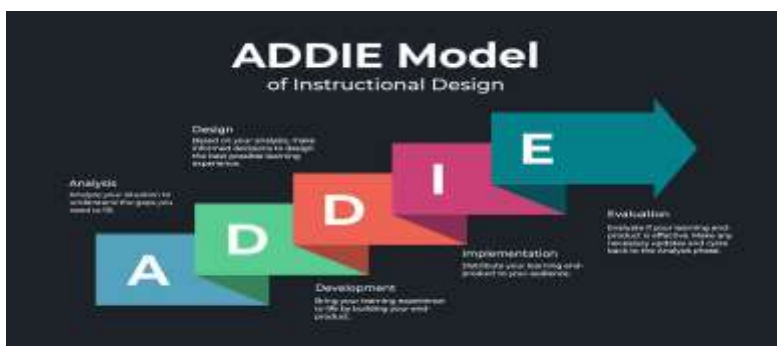


Figure 1. The Addie Model.

Analysis Phase: Based on our experience of teaching English, especially Year One students, they tend to get bored easily using the textbook via the traditional way of teaching. In order to help students, progress in comprehending further the topics in the textbook, we came up with the development of Android Studio application to create 21st interactive learning application that supplement English primary school textbook (<https://gurubesar.my/wp-content/uploads/2019/02/YEAR-1-ENGLISH.pdf>).

For us to reinforce key concepts covered in the school syllabus of textbooks, we thought of creating interactive pedagogical learning in the features of bright colours, illustrations of cute animals and pictures, and some colourful backgrounds. Our purpose is to grab the full attention of Year One students in learning the specific topics we have created.

Design Phase: In the design phase, we have discussed and decided learning objectives, instruments, lesson plan, contents, exercises, and media selections. Systematic orderly methods of identifying, developing and evaluating a set of planned strategies have been decided to attain the project's goals. These are the steps used for the design phase:

1. Documentation of the project's instructional, visual and technical design strategy. We had conducted online discussions for us to have a proper visual on the Android Studio application based on the storyboard we have. (Refer Figure 2)
2. Applying instructional strategies according to the intended behavioural outcomes by domain including cognitive, affective, and psychomotor. We have carefully applied the four language skills (reading, writing, speaking, and listening) that allow students to acquire skills in learning English. Students will comprehend the new topics from the apps by reading through the content of the lessons and start to apply the skills by completing the exercises. The teachers will evaluate students' understanding via students' scores.
3. Create storyboards. We have created a storyboard to display real pictures in 2-dimensional format to develop the document clearer. The storyboard is also for showing the connection between different pages or screens. (Refer on the development phase)
4. Designing the user interface and user experience. We created some interfaces to lead users throughout the application. Figure 3 shows how the interfaces for our application were intentionally made colourful to draw Year One students' interest in using it to learn.



Figure 2. The application interfaces.



Figure 3. The lesson pages.

Development Phase: As for the development phase, we have created and assembled the content assets that were created in the design phase. We have also performed debugging procedures while developing the project. The project is reviewed and revised by content expert.



Figure 4. The storyboard.

Implementation Phase: The implementation phase in this research was by conducting the pre-workshop one week before the main implementation to introduce the application concept to students and teachers. To make the mobile learning application accessible to everyone who participated, it was installed on a private server (Android Studio). The instructor gave each student and teacher a username and password at the pre-workshop and instructed them to login to the application to complete the pre-test and the pre-test assignment.



Figure 5. The use of Android Studio as a 21st technology tool for teaching and learning.

Evaluation Phase: As for the evaluation phase, it consists of two parts: formative and summative. Formative evaluation is present in each stage of the ADDIE process and we displayed it through exercise pages in the application. The students can be evaluated through their scores of answering the exercise phase. Meanwhile, we displayed the summative evaluation through examination pages where students will have to answer questions that consist of a mixed up of all lessons learned. The summative evaluation page comprises tests created for criterion-related referenced items that are domain-specific and offer chances for user feedback.



Figure 6. The exercise pages.



Figure 7. The examination pages.

4. DISCUSSION

Learning using an Android Studio via smart devices makes learning situations virtually which results in students feeling that the learning process is not limited by time and space because the mobile learning application can be used anywhere and anytime. Ahmar and Rahman (2017) states that on average 90.32% of students feel faster in understanding material and practical exercises when using Android-based teaching materials and 100% of students feel readier to face the subject matter. According to Muchtar et. al. (2020) and Yuliani et. al. (2018), it is stated that multimedia apps based on android in learning English language are effective as a medium of learning in improving student learning outcomes.

Smartphone learning allows teachers and students to go beyond traditional school spaces and increased flexibility and offer new interaction opportunities. The commercialization potential in learning using Android based multimedia are (a) access can be made anytime and anywhere to content; (b) support distance learning; (c) make learning centred on students; (d) excellent for timely training or content review; (e) can be used more effectively with people of different abilities; (f) can increase the interaction between students and teachers; and (g) reduce cultural and communication barriers between teachers and students by using communication channels preferred by students.

5. CONCLUSION

In conclusion, the evolution of Android Studio has made it an essential 21st-century teaching tool for supplementing English primary school textbooks. The ability to design and develop

applications using Android Studio can enhance students' critical thinking skills, creativity, and problem-solving abilities, which are all crucial skills for their future success. Furthermore, Android Studio's user-friendly interface and visual programming features make it an ideal platform for young learners to learn. Incorporating Android Studio into the curriculum can also help to increase student engagement and motivation. Overall, the use of Android Studio as a teaching tool has the potential to transform the way English is taught in primary schools, making it more interactive, fun, and practical.

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